



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification <sup>6</sup> : C07K 14/44S, A61K 39/01S, C12N 5/08, 15/30</p>	<p>A2</p>	<p>(11) International Publication Number: <b>WO 95/26982</b>  (43) International Publication Date: 12 October 1995 (12.10.95)</p>
<p>(21) International Application Number: PCT/GB95/00737  (22) International Filing Date: 31 March 1995 (31.03.95)  (30) Priority Data: 9406492.0 31 March 1994 (31.03.94) GB  (71) Applicant (for all designated States except US): ISIS INNO- VATION LIMITED [GB/GB]; 2 South Parks Road, Oxford OX1 3UB (GB).  (72) Inventors; and (75) Inventors/Applicants (for US only): HILL, Adrian, Vivian, Sinton [IE/GB]; 2 St Andrew's Road, Oxford OX3 9DL (GB). AIDOO, Michael [GH/GB]; Arthur Sanctuary House, John Radcliffe Hospital, Oxford OX3 9DU (GB). ALL- SOPP, Catherine, Elizabeth, Margaret [GB/GB]; 50 Benson Road, Oxford OX3 7EH (GB). LALVANI, Ajit [GB/GB]; 29 Warmborough Road, Oxford OX2 6JA (GB). PLEBAN- SKI, Magdalena [MX/GB]; 26 Benson Road, Oxford OX3 7EH (GB). WHITTLE, Hilton, Carter [GB/GM]; Medical Research Council Laboratories, P.O. Box 273, Fajara, Near Banjul (GM).  (74) Agent: PENNANT, Pyers, Stevens Hewlett &amp; Perkins, 1 Serjeants' Inn, Fleet Street, London EC4Y 1LL (GB).</p>		<p>(81) Designated States: JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  Published <i>Without international search report and to be republished upon receipt of that report.</i></p>
<p>(54) Title: MALARIA PEPTIDES  (57) Abstract  8-11-Mer peptides are identified, from four <i>Plasmodium falciparum</i> antigens, circumsporozoite protein, thrombospondin-related anonymous protein, spirozoite hepatocyte binding antigen and liver-stage antigen-1, as actual or potential cytotoxic T lymphocyte epitopes for human leucocyte antigen class I molecules HLA-A2, HLA-B8, HLA-B7 and HLA-B17. Vaccines for immunization against malaria contain these peptides or oligonucleotides coding for them. A method of inducing primary cytotoxic T lymphocyte responses to a chosen antigen or microorganism comprises incubating lymphocytes <i>ex vivo</i> with the chosen antigen or microorganism in the presence of keyhole limpet haemocyanin.</p>		